

# **Inactivation of Biological Contaminants in Drinking Water in Response to a Terrorist Attack**

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In the event of an intentional biological contamination of a drinking water treatment and distribution system, information on the removal and/or inactivation of known biological agents by drinking water treatment processes is needed. This project was initiated to determine what information relevant to *Bacillus anthracis* was available in the open literature, and to substantiate or develop new information on the efficacy of chemical disinfectants for inactivating a surrogate organism, a spore forming bacterium closely related to *Bacillus anthracis*. The surrogate chosen was *Bacillus cereus*. Studies of heat inactivation of *Bacillus cereus* spores were also conducted in order to provide guidance on issuance of “boil water” notices.

Studies were conducted to determine concentrations and exposure times for inactivation of *Bacillus cereus* spores by chlorine at different temperatures and pH levels. Similar work has been done to determine the time required to inactivate *Bacillus cereus* spores by boiling the water. Surrogates for the biological agents of concern are used due to the safety concerns of working with the actual biological agents.

This poster will describe the procedures used to generate the disinfection and heat inactivation data and present example results. The concentration x time (CT) results show the disinfectant concentration and exposure time needed to inactivate *Bacillus cereus* spores. Heat inactivation (boiling) data for *Bacillus cereus* spores will also be displayed.

This work is a cooperative effort between ORD’s Water Supply and Water Resources Division (WS&WRD) and ORD’s National Homeland Security Research Center (NHSRC), and was initiated at the request of the Centers for Disease Control and Prevention (CDC). The information generated is applicable to the health protection of all drinking water consumers.

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